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Public Law 96-386
96th Congress

An Act

To provide for an accelerated program of research and development of magnetic fusion energy technologies leading to the construction and successful operation of a magnetic fusion demonstration plant in the United States before the end of the twentieth century to be carried out by the Department of Energy.

Oct. 7, 1980
[H.R. 6308]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Magnetic Fusion Energy Engineering Act of 1980".

Magnetic Fusion Energy Engineering Act of 1980.
42 USC 9301 note.

FINDINGS AND POLICY

42 USC 9301.

SEC. 2. (a) The Congress hereby finds that—

(1) the United States must formulate an energy policy designed to meet an impending worldwide shortage of many exhaustible, conventional energy resources in the next few decades;

(2) the energy policy of the United States must be designed to ensure that energy technologies using essentially inexhaustible resources are commercially available at a time prior to serious depletion of conventional resources;

(3) fusion energy is one of the few known energy sources which are essentially inexhaustible, and thus constitutes a long-term energy option;

(4) major progress in all aspects of magnetic fusion energy technology during the past decade instills confidence that power production from fusion energy systems is achievable;

(5) the United States must aggressively pursue research and development programs in magnetic fusion designed to foster advanced concepts and advanced technology and to develop efficient, reliable components and subsystems;

(6) to ensure the timely commercialization of magnetic fusion energy systems, the United States must demonstrate at an early date the engineering feasibility of magnetic fusion energy systems;

(7) progress in magnetic fusion energy systems is currently limited by the funds made available rather than technical barriers;

(8) it is a proper role for the Federal Government to accelerate research, development, and demonstration programs in magnetic fusion energy technologies; and

(9) acceleration of the current magnetic fusion program will require a doubling within seven years of the present funding level without consideration of inflation and a 25 per centum increase in funding each of fiscal years 1982 and 1983.

(b) It is therefore declared to be the policy of the United States and the purpose of this Act to accelerate the national effort in research, development, and demonstration activities related to magnetic fusion energy systems. Further, it is declared to be the policy of the United States and the purpose of this Act that the objectives of such program shall be—

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(1) to promote an orderly transition from the current research and development program through commercial development;

(2) to establish a national goal of demonstrating the engineering feasibility of magnetic fusion by the early 1990's;

(3) to achieve at the earliest practicable time, but not later than the year 1990, operation of a magnetic fusion engineering device based on the best available confinement concept;

(4) to establish as a national goal the operation of a magnetic fusion demonstration plant at the turn of the twenty-first century;

(5) to foster cooperation in magnetic fusion research and development among government, universities, industry, and national laboratories;

(6) to promote the broad participation of domestic industry in the national magnetic fusion program;

(7) to continue international cooperation in magnetic fusion research for the benefit of all nations;

(8) to promote greater public understanding of magnetic fusion; and

(9) to maintain the United States as the world leader in magnetic fusion.

DEFINITIONS

42 USC 9302.

SEC. 3. For the purposes of this Act—

(1) "fusion" means a process whereby two light nuclei, such as deuterium and tritium, collide at high velocity, forming a compound nucleus, which subsequently separates into constituents which are different from the original colliding nuclei, and which carry away the accompanying energy release;

(2) "magnetic fusion" means the use of magnetic fields to confine a very hot, fully ionized gas of light nuclei, so that the fusion process can occur;

(3) "energy system" means a facility designed to utilize energy released in the magnetic fusion process for the generation of electricity and the production of hydrogen or other fuels;

(4) "fusion engineering device" means a magnetic fusion facility which achieves at least a burning plasma and serves to test components for engineering purposes;

(5) "demonstration plant" means a prototype energy system which is of sufficient size to provide safety, environmental reliability, availability, and ready engineering extrapolation of all components to commercial size but which system need not be economically competitive with then alternative energy sources; and

(6) "Secretary" means Secretary of Energy.

PROGRAM ACTIVITIES

42 USC 9303.

SEC. 4. (a) The Secretary shall initiate activities or accelerate existing activities in research areas in which the lack of knowledge limits magnetic fusion energy systems in order to ensure the achievement of the purposes of this Act.

Plasma confinement research.

(b)(1) The Secretary shall maintain an aggressive plasma confinement research program on the current lead concept to provide a full measure of support for the design, construction, and operation of the fusion engineering devices.

(2) The Secretary shall maintain a broadly based research program on alternate confinement concepts and on advanced fuels at a sufficient level of funding to achieve optimal design of each successive magnetic fusion facility using the then best available confinement and fuel concept.

(3) The Secretary shall ensure that research on properties of materials likely to be required for the construction of fusion engineering devices is adequate to provide timely information for the design of such devices.

Fusion engineering device designs.

(c)(1) The Secretary shall initiate design activities on a fusion engineering device using the best available confinement concept to ensure operation of such a device at the earliest practicable time, but not later than the year 1990.

(2) The Secretary shall develop and test the adequacy of the engineering design of components to be utilized in the fusion engineering device.

(d) The Secretary shall initiate at the earliest practical time each activity which he deems necessary to achieve the national goal for operation of a demonstration plant at the turn of the twenty-first century.

Magnetic fusion energy systems, assessment factors.

(e) The Secretary shall continue efforts to assess factors which will determine the commercial introduction of magnetic fusion energy systems including, but not limited to—

(1) projected costs relative to other alternative energy sources;

(2) projected growth rates in energy demand;

(3) safety-related design limitations;

(4) environmental impacts; and

(5) limitations on the availability of strategic elements, such as helium, lithium, and special metals.

COMPREHENSIVE PROGRAM MANAGEMENT PLAN

42 USC 9304.

SEC. 5. (a) The Secretary shall prepare a comprehensive program management plan for the conduct of the research, development, and demonstration activities under this Act. Such plan shall include at a minimum—

(1) a presentation of the program strategy which will be used to achieve the purposes of this Act;

(2) a five-year program implementation schedule, including identification of detailed milestone goals, with associated budget and program resources requirements;

(3) risk assessments;

(4) supporting research and development needed to solve problems which may inhibit or limit development of magnetic fusion energy systems; and

(5) an analysis of institutional, environmental, and economic considerations which are limiting the national magnetic fusion program.

Submittal to congressional committees.

(b) The Secretary shall transmit the comprehensive program management plan to the Committee on Science and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate not later than January 1, 1982.

MAGNETIC FUSION ENGINEERING CENTER

42 USC 9305.

SEC. 6. (a) The Secretary shall develop a plan for the creation of a national magnetic fusion engineering center for the purpose of accelerating fusion technology development via the concentration

and coordination of major magnetic fusion engineering devices and associated activities at such a national center.

Plan development, factors.

(b) In developing the plan, the Secretary shall include relevant factors including, but not limited to—

(1) means of saving cost and time through the establishment of the national center relative to the cost and schedule currently projected for the program;

(2) means of providing common facilities to be shared by many magnetic fusion concepts;

(3) assessment of the environmental and safety-related aspects of the national center;

(4) provisions for international cooperation in magnetic fusion activities at the national center;

(5) provision of access to facilities for the broader technical involvement of domestic industry and universities in the magnetic fusion energy program;

(6) siting criteria for the national center including a list of potential sites;

(7) the advisability of establishing such a center considering all factors, including the alternative means and associated costs of pursuing such technology; and

(8) changes in the management structure of the magnetic fusion program to allow more effective direction of activities related to the national center.

Report to congressional committees.

(c) The Secretary shall submit not later than July 1, 1981, a report to the House Committee on Science and Technology and the Senate Committee on Energy and Natural Resources characterizing the plan and setting forth the steps necessary for implementation of the plan, including any steps already implemented.

TECHNICAL PANEL ON MAGNETIC FUSION

42 USC 9306.

SEC. 7. (a) A technical panel on magnetic fusion of the Energy Research Advisory Board shall be established to review the conduct of the national magnetic fusion energy program.

Membership.

(b)(1) The technical panel shall be comprised of such representatives from domestic industry, universities, government laboratories, and other scientific and technical organizations as the Chairman of the Energy Research Advisory Board deems appropriate based on his assessment of the technical qualifications of each such representative.

(2) Members of the technical panel need not be members of the full Energy Research Advisory Board.

(c) The activities of the technical panel shall be in compliance with any laws and regulations guiding the activities of technical and fact-finding groups reporting to the Energy Research Advisory Board.

Review.

(d) The technical panel shall review and may make recommendations on the following items, among others:

Ante, p. 1541.

(1) the preparation of the five-year program plan prepared pursuant to section 5;

(2) the type of future facilities needed to meet the goals of this Act along with their projected completion dates;

(3) the adequacy of participation by universities and industry in the program;

(4) the adequacy of international cooperation in magnetic fusion and any problems associated therewith; and

(5) institutional, environmental, and economic factors limiting, or prospectively limiting, efforts to achieve commercial application of magnetic fusion energy systems.

(e) The technical board shall submit to the Energy Research Advisory Board on at least a triennial basis a written report of its findings and recommendations with regard to the magnetic fusion program. Written report.

(f) After consideration of the technical panel report, the Energy Research Advisory Board shall submit such report, together with any comments such Board deems appropriate, to the Secretary. Report to Secretary.

PROGRAM ADVISORY COMMITTEES

SEC. 8. The Secretary may direct the director of each laboratory or installation at which a major magnetic fusion facility is operated for, or funded primarily by, the Federal Government to establish, for the sole purpose of providing advice to such director, a program advisory committee composed of persons with expertise in magnetic fusion from such domestic industry, universities, government laboratories, and other scientific and technical organizations as such director deems appropriate. 42 USC 9307.

INTERNATIONAL COOPERATION

SEC. 9. (a)(1) The Secretary in consultation with the Secretary of State shall actively seek to enter into or to strengthen existing international cooperative agreements in magnetic fusion research and development activities of mutual benefit to all parties. 42 USC 9308.

(2) The Secretary shall seek to achieve equitable exchange of information, data, scientific personnel, and other considerations in the conduct of cooperative efforts with technologically advanced nations.

(b)(1) The Secretary shall examine the potential impacts on the national magnetic fusion program of United States participation in an international effort to construct fusion engineering devices. Magnetic fusion, examination and exploration.

(2) The Secretary shall explore, to the extent feasible, the prospects for joint financial participation by other nations with the United States in the construction of a fusion engineering device.

(3) Within two years of the enactment of this Act the Secretary shall transmit to the House Committee on Science and Technology and the Senate Committee on Energy and Natural Resources the results of such examinations and explorations with his recommendations for construction of a national or international fusion engineering device: *Provided, however,* That such examinations and explorations shall not have the effect of delaying design activities related to a national fusion engineering device. Results, transmittal to congressional committees.

TECHNICAL MANPOWER REQUIREMENTS

SEC. 10. (a) The Secretary shall assess the adequacy of the projected United States supply of manpower in the engineering and scientific disciplines required to achieve the purposes of this Act taking cognizance of the other demands likely to be placed on such manpower supply. 42 USC 9309.

(b) The Secretary shall within one year of the date of enactment of this Act submit a report to the President and to the Congress setting forth his assessment along with his recommendations regarding the Report to President and Congress.

need for increased support for education in such engineering and scientific disciplines.

INFORMATION DISSEMINATION

42 USC 9310.

SEC. 11. (a) The Secretary shall take all necessary steps to assure that technical information relevant to the status and progress of the national magnetic fusion program is made readily available to interested persons in domestic industry and universities in the United States: *Provided, however,* That upon a showing to the Secretary by any person that any information or portion thereof provided to the Secretary directly or indirectly from such person would, if made public, divulge (1) trade secrets or (2) other proprietary information of such person, the Secretary shall not disclose such information and disclosure thereof shall be punishable under section 1905 of title 18, United States Code.

(b) The Secretary shall maintain an aggressive program in the United States for the provision of public information and educational materials to promote widespread knowledge of magnetic fusion among educational, community, business, environmental, labor, and governmental entities and the public at large.

REPORTS

Submittal to Congress.
42 USC 9311.
42 USC 7321.

SEC. 12. As a separate part of the annual report submitted pursuant to section 801 of the Department of Energy Organization Act (Public Law 95-91), the Secretary shall submit to Congress an annual report of activities pursuant to this Act. Such report shall include—

(a) modifications to the comprehensive program management plan for implementing this Act;

(b) an evaluation of the status of national magnetic fusion energy program in the United States;

(c) a summary of the findings and recommendations of any report of the Energy Research Advisory Board on magnetic fusion;

(d) an analysis of the progress made in commercializing magnetic fusion technology; and

(e) suggestions for improvements in the national magnetic fusion program, including recommendations for legislation.

AUTHORIZATION OF APPROPRIATIONS

42 USC 9312.

SEC. 13. (a) There is hereby authorized to be appropriated to the Secretary, for the fiscal year ending September 30, 1981, such sums as are provided in the annual authorization Act pursuant to section 660 of Public Law 95-91.

42 USC 7270.
Contract.

(b) In carrying out the provisions of this Act, the Secretary is authorized to enter into contracts only to such extent or in such amounts as may be provided in advance in appropriations Acts.

Approved October 7, 1980.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 96-1096 (Comm. on Science and Technology).
SENATE REPORT No. 96-942 accompanying S. 2926 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 126 (1980):
Aug. 25, considered and passed House.
Sept. 23, S. 2926 considered and passed Senate; passage vitated and H.R. 6308, amended, passed in lieu.
Sept. 24, House concurred in Senate amendments.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 16, No. 44:
Oct. 7, Presidential statement.

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